



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,305	03/05/2001	Winfried Koenig	10191/1661	8055
26646	7590	04/27/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			LU, TOM Y	
			ART UNIT	PAPER NUMBER
			2621	
DATE MAILED: 04/27/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/743,305	KOENIG ET AL.
	Examiner	Art Unit
	Tom Y Lu	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 March 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 26-62 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 31 is/are allowed.
 6) Claim(s) 26-30 and 32-61 is/are rejected.
 7) Claim(s) 62 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 03 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment and written response filed on March 03, 2004 has been entered.
2. Claims 1-25 are cancelled.
3. Claim 62 is added.
4. Claims 26-62 are pending.

Response to Arguments

5. Applicant's arguments filed on March 03, 2004 have been fully considered but they are not persuasive.

The Tatsuhiko Reference:

Applicant argues the Tatsuhiko reference does not teach “capturing an image of at least part of the surrounding area of the motor vehicle by a first optical opening of a camera device” and “capturing an image of at least part of the interior of the motor vehicle by a second optical opening of the camera device”. In summary, applicant argues Tatsuhiko does not anticipate all the limitations recited in the claim.

Upon further review of specification, and in light of applicant's arguments, the examiner respectfully disagrees for the following reasons. Tatsuhiko discloses a camera device mounted inside a vehicle, which rotates alternatively to capture images outside the vehicle as well as images inside the vehicle. Tatsuhiko does not teach such camera contains two optical openings. Nonetheless, it would have been an obvious matter of design choice to modify the Tatsuhiko reference by having two optical openings to capture images inside and outside the vehicle alternatively, since applicant has not disclosed two optical openings in a camera would have any

particular advantages when it comes to taking images *alternatively*, and it appears that having a camera that rotates to capture images alternatively would perform equally well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26-28, 32-39, 44-46, 51-58 & 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko et al (Japanese Publication No. 10-35320, a copy of translation is attached).

a. Referring to Claim 26, Tatsuhiko discloses (1) capturing an image of at least part of the surrounding area of the motor vehicle by a camera device (Tatsuhiko, in paragraph [0006] teaches using an image pick-up equipment to obtain pictures of surrounding area of vehicle); (2) capturing an image of at least part of the interior of the motor vehicle by the camera device (Tatsuhiko in paragraph [0007] teaches using the same image pick-up equipment to obtain pictures of vehicle interior, such as face or eyes of the operator of the vehicle as described in paragraph [0008]); the steps (1) and (2) being performed alternately (Tatsuhiko in paragraph [0023] teaches the image pick-up equipment can take pictures easily both outside and inside. In addition, Tatsuhiko in paragraph [0010] teaches a control panel is equipped with a mode transfer switch, which implies the steps 1 and 2 are switched back and forth); and (3) transmitting the images obtained in steps (1) and (2)

to a processing unit (Tatsuhiko in paragraph [0010] discloses an image processing unit is used to process the pictures taken by the image pick-up equipment). Tatsuhiko discloses a camera device mounted inside a vehicle, which rotates alternatively to capture images outside the vehicle as well as images inside the vehicle. However, Tatsuhiko does not teach such camera contains two optical openings. Nonetheless, it would have been an obvious matter of design choice to modify the Tatsuhiko reference by having two optical openings to capture images inside and outside the vehicle alternatively, since applicant has not disclosed two optical openings in a camera would have any particular advantages when it comes to taking images *alternatively*, and it appears that having a camera that rotates to capture images alternatively would perform equally well.

- b. Referring to Claim 27, Tatsuhiko discloses wherein the at least part of the surrounding area of the vehicle is in a direction of travel (Tatsuhiko in paragraph [0011] teaches “front recognition mode”, which is in the direction of travel).
- c. Referring to Claim 28, Tatsuhiko discloses wherein the at least part of the interior of the vehicle includes parts of a body of a driver (Tatsuhiko in paragraph [0008] teaches the face of the operator of the vehicle)
- d. Referring to Claim 32, Tatsuhiko discloses only an image of an area surrounding the motor vehicle visible to the camera device is captured in the step (1); and only an image of the interior of the motor vehicle visible to the camera device is captured in the step (2) (see paragraphs [0006] and [0007])
- e. Referring to Claim 33, Tatsuhiko discloses wherein switching back and forth between the step (1) and the step (2) is accomplished via at least one light valve

(Tatsuhiko in paragraph [0010] teaches switching back and forth between the step 1 and 2 is accomplished via at least one light valve).

f. Referring to Claim 34, Tatsuhiko discloses wherein the at least one light valve is an electro-optical light valve (an camera inherently contains at least one electro-optical light valve).

g. Referring to Claim 35, Tatsuhiko discloses switching back and forth between capturing a partial area of the interior and a partial area of the surrounding area; processing by the processing unit the partial areas captured; and capturing a next partial area (the examiner already explains in Claim 26 above that the image pick-up equipment switches back and forth to process two or more modes at the same time. Therefore, the image pick-up equipment must sometimes capture a partial area of the interior and a partial area of the surrounding area).

h. Referring to Claim 36, Tatsuhiko discloses capturing a face of a driver, the face including eyes of the driver (paragraph [0008]).

i. Referring to Claim 37, Tatsuhiko discloses capturing at least one of road markings and a position of the vehicle relative to the road markings (see paragraph [0018])

j. Referring to Claim 38, Tatsuhiko discloses evaluating at least one of the face of the driver and a position of the vehicle relative to road markings to determine at least one of whether the eyes of the driver are open and whether the vehicle is moving beyond a predefined area of the road markings; and issuing at least one of a visual warning an audio warning based on the evaluation (paragraphs [0015], [0018], [0062], and [0095]).

- k. Referring to Claim 39, Tatsuhiko discloses capturing road signs (when the image pick-up equipment takes pictures of surrounding area of the vehicle, the road signs will inherently be captured).
- l. With regard to Claim 44, all limitations are addressed in Claim 26 (note when the camera captures the image outside, it is the first beam path; when it captures the image inside, it is the second beam path).
- m. With regard to Claim 45, see explanation in claims 27 and 28.
- n. With regard to Claim 46, see explanation in Claim 28.
- o. With regard to Claim 51, see explanation in Claim 33.
- p. Referring to Claim 52, every camera has a light valve, which is a liquid crystal cell.
- q. Referring to Claim 53, every camera has at least one deviation mirror.
- r. Referring to Claim 54, every camera has at least one mirror, which is semi-transparent.
- s. Referring to Claim 55, everything camera has at least one deviation which is concave or convex.
- t. Referring to Claim 56, Tatsuhiko discloses the camera device has a single camera.
- u. Referring to Claim 57, Tatsuhiko discloses the single camera is one of a CCD camera and a CMOS camera (see paragraph [0031]).
- v. Referring to Claim 59, Tatsuhiko discloses at least one of visual output units and acoustic output units connected to the processing unit, the at least one of visual output units and acoustic output units configured to issue a warning to a driver when one of eyes

of the driver are closed and the vehicle is about to move beyond a marked area of a road (see paragraph [0079]).

w. Referring to Claim 60, Tatsuhiko discloses the camera device is one of arranged in an upper part of a windshield and integrated into a roof of the vehicle (see figure 2)

x. Referring to Claim 61, Tatsuhiko discloses an adjustment device configured to adjust the at least one deviation mirror so that at least eyes and lips of a driver can be seen in the image of the interior of the vehicle captured by the camera device (Tatsuhiko in paragraph [0026] teaches changeover switch 105 performs the function of changing focus when the camera starts capturing interior images. Focus change inherently adjusts the deviation mirror inside the camera. In addition, the examiner explains before Tatsuhiko teaches taking images of an operator's face).

7. Claims 29-30 and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko in view of Ueno et al (U.S. Patent No. 5,293,427). All the arguments and applicability in Claims 26 and 44 are incorporated herein.

a. Referring to Claim 29, Tatsuhiko discloses illuminating the interior of the vehicle. However, Tatsuhiko does not explicitly teach illuminating the interior by a radiation source, the radiation source emitting a radiation at least substantially invisible to the human eye. Ueno at column 2, lines 50-61, teaches use of the infrared rays, which is substantially invisible to the human eyes. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to take face images by a camera in synchronism with the infrared rays. One of ordinary skill in the art would have been motivated to do this because

Tatsuhiko in paragraph [0008] teaches taking picture of a vehicle operator to determine whether the operator is dozing. And Ueno at column 4, lines 24-36, teaches using a camera taking images of a driver for the same purpose with an additional feature of infrared rays, which activates the camera to take an image of the driver to determine if the driver is dozing. Therefore, it would be reasonable to a person of ordinary skill in the art to add an infrared source to Tatsuhiko's system for camera activation purpose.

- b. Referring to Claim 30, Ueno teaches the radiation source is an infrared radiation source.
 - c. With regard to Claim 47, see explanation in Claim 29.
 - d. With regard to Claim 48, see explanation in Claim 30.
 - e. With regard to Claim 49, see explanation in Claim 29.
 - f. With regard to Claim 50, see figure 1 in Ueno.
8. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko in view of Breed et al (U.S. Patent No. 5,845,000). All the arguments and applicability in Claim 26 are incorporated herein.
 - a. Referring to Claim 40, Tatsuhiko discloses taking pictures of a vehicle's interior. However, Tatsuhiko does not teach using such picture images to determine at least one of a number of people in the vehicle and seat occupancy. Breed in the abstract, teaches using the image data obtained through a camera to determine the position of the vehicle occupant relative to the airbag, and disable deployment of the airbag if necessary. At the time the invention was made, it would have been

obvious to a person ordinary skill in the art to take image data of a vehicle interior to determine at least one of a number of people in the vehicle and seat occupancy. One of ordinary skill in the art would have been motivated to do this because Breed in abstract teaches determining the position of the vehicle occupant through the image taken by a camera, which is equipped in Tatsuhiko's system as well, would be an advantage that allows the system to disable deployment of the airbag if the occupant is positioned so that he/she is likely to be injured by the deployment of the airbag.

- b. Referring to Claim 41, see explanation with regard to deactivating an airbag in Claim 40, also see figure 2 in Breed.

9. Claim 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko in view of Kondo (U.S. Patent No. 6,396,954). All the arguments and applicability in Claim 26 are incorporated herein.

- a. Referring to Claim 42, Tatsuhiko discloses taking pictures of a driver's face. However, Tatsuhiko does not explicitly teach capturing lip movements of a person in the vehicle to support a speech input system. Kondo at column 6, lines 38-46, teaches use of a CCD camera in accordance with speech input system. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a camera to capture the movement of a driver's mouth to support a speech input system because as Kondo points out at column 6, line 45-46, it will increase the rate of speech recognition.

- b. Referring to Claim 43, Tatsuhiko discloses the person is a driver of the vehicle.

10. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuhiko in view of Diner (U.S. Patent No. 5,065,236). All the arguments and applicability in Claim 44 are incorporated herein.

a. Referring to Claim 58, Tatsuhiko does not explicitly disclose the image pick-up equipment contains 2 cameras for capturing images stereoscopically. Diner at column 2, lines 30-54, using two cameras to produce stereoscopic images. At the time the invention was made, one of ordinary skill in the art would have been motivated to do this because Diner at column 2, lines 48-49, teaches parallel cameras with shifted and magnified stereoscopic images can provide fully undistorted views of objects with control of the perceived depth of the plane of interest.

Allowable Subject Matter

11. Claim 31 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Independent Claim 31 defines features of superimposing the at least part of the interior of the vehicle visible to the camera device on the at least part of the surrounding area of the vehicle visible to the camera device; and determining the image of the at least part of the interior of the vehicle by subtracting the image of the at least part of the surrounding area. These features in combination with other features in Claim 31, which is the broadest allowable claim, are not taught or suggested by the art of record.

12. Claim 64 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Park et al, U.S. Patent No. 6,690,374 B2, see figure 1B and abstract.
- b. Gilber et al, U.S. Patent No. 6,654,019 B2, see figures 5A and 5B.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

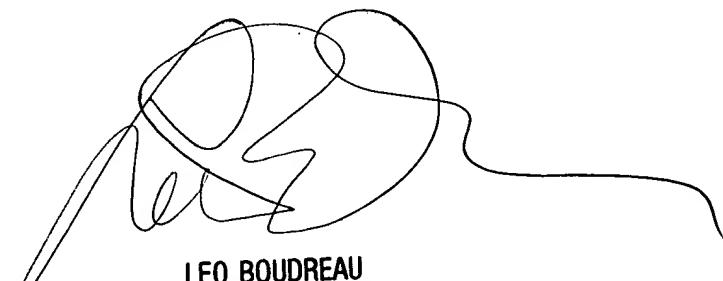
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600